Applicant respectfully traverses this rejection on the ground that each of independent claims 8, 15 and 22 provide a structure which is not disclosed by Gordon in a manner required by 35 U.S.C. 102.

Applicant's claimed invention has a valve stem 8 holding a valve member 10 which interacts with a valve seat 13 on a valve housing 2. Furthermore, a valve guide 9 guides the valve stem 8 in the housing 2. The activating device 3 axially moves the valve stem 8 and the valve member 10 in the valve housing 2 with the valve member 10 interacting with the valve seat 13 on the valve housing 2 to determine flow through the valve. An annular space is formed between the valve guide 9 and the valve member 10 with the annular space providing a contact area between the valve member 10 and the valve seat 13 which is bounded on one side by a step adjoined by guide surface 16.

Even if it is accepted that the reference to Gordon discloses some configuration which could be interpreted as a step 17 next to a sloping surface, there is no comparison which can be made between the other elements of each of independent claims 8, 15 and 22. According to the statement of the final rejection, the ring 19 of Gordon is fixed to the head 16 to form the valve member. Beginning with that assumption, the disclosure of Gordon indicates that the piston valve is numbered 20 and the valve seat is numbered 18. Thus, there is no correspondence in Gordon with a valve stem which holds the valve member interacting with a valve seat on a valve housing or of a valve guide for guiding the stem in the valve housing. Furthermore, there is no annular space formed between the valve guide and the valve member which provides a contact area between the valve member and the valve seat. The space between 17 and 18 of

Figure 2 of Gordon is the only disclosed annular space and it separates the nozzle body 10 from the ring 19 or, in the interpretation of the final rejection, the space between 17 and 18 regulates the space between the nozzle body 10 and the "valve member consisting of the ring 19 and the head 16." This annular space, even accepting this interpretation is not the space of the claimed invention because the annular space in the claimed invention is formed between the valve guide and the valve member and the valve guide is specifically indicated as having the purpose of guiding the valve stem in the valve housing. There is no such correspondence structure in Gordon because the only annular space is bounded by the ring 19 and the nozzle body 10 and regardless of how the nozzle body 10 is interpreted, it cannot be a "valve guide for guiding said stem in said valve housing." Therefore, it is submitted that the present invention particularly recites subject matter having a plurality of features cooperating in a relationship that is not disclosed by the reference to Gordon. For these reasons, regardless of the "reading" of the contact area being defined by 17 and 18 and the sloping surface adjoining the outer edge of 17, this does not detract the fact that the remaining structure of the presently claimed invention is not part of the structure disclosed by Gordon.

Aside from the structural features which distinguish the present invention from the disclosure of Gordon, it must be emphasized that the reference to Gordon "088 has a completely different object then the present invention. A brief review of the nature of the present invention as well as the nature of the reference to Gordon is helpful in understanding that the distinguishing features between the claimed invention and the references are not obvious variations.

Applicant's invention is an electrically controllable valve for the purpose of limiting the quantity of fuel injected for each operating cycle. In these types of devices, a connection is established between the pressure line of the injection pump and a return flow duct. As a result, the effective delivery of the injection stroke is terminated. Thus, all flow cross-sections in front of and behind the valve seat are filled with hydraulic fluid. Due to high flow rates and large cross-sectional changes, such as the large vacuum locally created may cause cavitation to occur. The present invention avoids this possibility of cavitation by using guiding surfaces in the flow direction which, adjoin a step which bounds the seat surface of the valve disk. As a result of the guiding surfaces 16, which have the same slope as the contour of the valve body on the flow side in front of the valve seat, the flow cross-section expands only slightly behind the valve seat 13 so that there is no possibility of cavitation. In the embodiment of Fig. 6, the step 15 and the guiding surface 16 are situated on the valve body so that the flow cross-section is abruptly enlarged at the step 15. However, step 15 may be dimension to be sufficiently large that it fulfills its function that the hydraulic characteristics of the valve seat do not change as a result of wear and, at the same time, the flow cross-section is only very slightly influenced so that no cavitation occurs.

In contrast to the present invention, the reference to Gordon '088 has no disclosure or suggestion concerning an electrically controllable valve but instead uses a pressure-control fuel injection valve in order to charge the fuel according to defined perimeters in a finely distributive manner into the combustion space of an internal combustion engine and mixing that fuel with combustion air. In

order to accomplished this purpose, the feed lines 27 and the injection bores 25 are positioned in the valve body 20 through which the fuel is injected into the combustion space at high pressure. In order to insure uniform distribution of the fuel, several injections bores are distributed along the circumference. The valve seat 17, 18 is positioned in the flow direction behind the injection bores to seal off the injection valve in the closed condition in order to avoid after-injection of the injection nozzle. In the open condition of the valves, fuel is injected through injection bores and the open gap between the surfaces 17, 18 directly into the air filled combustion space in order to be divided into fine droplets mixed with air.

Applicant respectfully submits that in a process by which the fuel jet impacts combustion air, cavitation is not a factor. Additionally, it is not desirable for liquid fuel in the flow direction behind the injection bore to wet the walls of the injection nozzle because the liquid fuel deposited on the wall is difficult to burn and leads to after-dripping of the nozzle. This would result in a poor operating performance of the internal combustion engine and a high pollution emission especially during start up. In the open condition of the injection valve, fuel is therefore sprayed in a directed manner through the gap into the combustion space resulting for conical surfaces 17 and 18. Adjacent to these surfaces, the distance between the upper and lower portion of the nozzle body expands rapidly so that liquid fuel will no longer come in contact with the wall portions. Together with the jet direction of the fuel corresponding to the injection bore 25, the wall portions enclose an angle between 30 and 35 degrees. Even in the instance of an assumed injection jet cone of 20 degrees, the fuel would be a considerable distance from the adjacent walls. Thus, guiding surfaces

of the presently claimed invention are not involved and would have no function in the reference to Gordon. Furthermore, the reference to Gordon '088 specifically indicates that the fuel flows in the form of directed injection jets through the open cross-section at the outlet opening 26 of the injection bores 25 between the valve cone 17 and the valve seat 18 into the combustion space of the internal-combustion engine (column 3, lines 50-55).

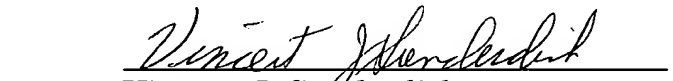
Therefore, Applicant respectfully requests reconsideration and allowance of this application containing claims 8-22 and particularly including independent 8, 15 and 22.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #225/48700).

Respectfully submitted,

Date: April 24, 2002



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